

REMARKS

Claims 12 and 13 are withdrawn as directed to an independent invention. Please cancel claims 12 and 13 without prejudice or disclaimer, as a divisional application including these claims was filed July 8, 2004.

Claims 1-7 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Le Strat et al. (U.S. Patent Number 6,134,220, hereinafter "Le Strat"), claims 8 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiedemann, Jr. et al. (U.S. Patent Number 6,335,922, hereinafter "Tiedemann 922") in view of Mandyam et al. (U.S. Patent Publication Number 2001/0029189, hereinafter "Mandyam"), claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiedemann 922 in view of Mandyam and further in view of Tiedemann, Jr. et al. (U.S. Patent Number 6,396,867, hereinafter "Tiedemann 867"), claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiedemann 922 in view of Mandyam and further in view of Olofsson et al. (U.S. Patent Number 6,167,031, hereinafter "Olofsson"), claims 14 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Le Strat in view of Tiedemann 922, claims 16 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Le Strat in view of Tiedemann 867, and claims 17 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Le Strat in view of Mandyam. The applicants respectfully disagree with the rejections above and request reconsideration.

Independent claim 1 recites (emphasis added) "determining power control feedback information for each mobile unit within the plurality of mobile units that require data transmission." Le Strat column 10, lines 1-9 is cited as teaching this language. Le Strat column 10, lines 1-15 reads (emphasis added):

In each station (base transceiver station and mobile station) a transmitted signal is received (21) and then its quality Q is determined (22) by a method that is known in itself. There are many indicators of signal quality, some of which are already calculated in the stations for other purposes. They include the following criteria:

the bit error rate (BER) of the received signal,
the power of the received signal,

the distance between the mobile station and the base transceiver station, an estimate of the impulse response of the transmission channel, the time alignment, the signal to noise ratio, the C/I ratio.

More than one of these criteria can naturally be considered in order to refine the analysis.

Independent claim 5 recites (emphasis added) "a channel statistic estimator, wherein the channel statistic estimator has power control information for a plurality of mobile units as an input and outputs a power-control statistic based on the power control information." Le Strat column 7, lines 6-11 and column 7, lines 4-5 is cited as teaching this language. Le Strat column 10, lines 4-11 reads (emphasis added):

Said thresholds are preferably predetermined values of the signal to interference ratio (C/I).

In a preferred embodiment the decision to change coding mode and/or transmission mode is taken in said base transceiver station, said mobile station transmitting to said base transceiver station information representative of transmission quality in the base transceiver station to mobile station direction.

Independent claim 1 also recites (emphasis added) "scheduling the plurality of mobile units for data transmission based on their power control feedback information, wherein scheduling comprises prioritizing at least one mobile unit of the plurality of mobile units over at least one other mobile unit of the plurality of mobile units for data transmission." Independent claim 5 also recites (emphasis added) "[a]n apparatus for scheduling mobile units for data transmission, the apparatus comprising: ... a scheduler having the power-control statistic as an input and outputting scheduled mobile units based on the power control statistic, wherein the scheduled mobile units comprises at least one mobile unit of the plurality of mobile units being prioritized over at least one other mobile unit of the plurality of mobile units for data transmission."

In the Examiner's *Response to Arguments* section, the Examiner asserts that call setup and the selection of the transmission mode are part of scheduling data transmission. Le Strat column 1, line 58-60 and column 4, lines 39-40 are cited in support this assertion. Le Strat column 1, line 58-60 reads:

According to the GSM standard, a transmission mode is chosen at the time the call is set up and is retained throughout the call. This technique has two drawbacks:

Le Strat column 4, lines 39-40 reads:

In other words, a transmission mode is chosen when a call is initialized, corresponding to a required level of quality, for example.

However, the applicants assert that call setup and the selection of the transmission mode in Le Strat do not teach the prioritization involved in scheduling, as claimed in claims 1 and 5.

Regarding claim 8, the Examiner asserts that Tiedemann 922 teaches claim 8 except for determining a fading metric. For this teaching the Examiner cites Mandyam paragraphs 0017 and 0020. Mandyam paragraph 17 reads (emphasis added):

[0017]Through operation of an embodiment of the present invention, a manner by which to schedule communication of the burst data pursuant to the burst data service is provided. When communication conditions of the communication channel upon which the burst data is to be communicated are determined to be acceptable, communication of the burst data is permitted. When, conversely, the communication conditions are determined to exhibit excessive levels of fading, communication of the data is delayed until communication conditions return to acceptable levels. Power control commands, generated to effectuate closed loop power control pursuant to separate communications by way of a dedicated air interface link, are monitored. The power control commands provide an indication of channel conditions, and the burst data is permitted to be communicated if the channel conditions are determined to be acceptable.

Mandyam paragraphs 19 and 20 read (emphasis added):

[0019]While the power control commands are conventionally used at the sending station to increase, or decrease power levels of communication signals subsequently to be generated by the sending station, the power control commands are also an indication of the channel conditions of the communication channel upon which the communications are effectuated. An embodiment of the present invention monitors the power control commands provided to the sending station pursuant to effectuation of the first communication service. Responsive to the monitored power control commands, a determination is made of the communication channel conditions. If the communication channel conditions are determined to be at least an acceptable level, burst data is permitted to be communicated upon the communication channel pursuant to the burst

data service.

[0020]In another aspect of the present invention, the power control commands are monitored during a selected time period. Responsive to the monitoring of values of the power control commands during the selected time periods, permission is selectively granted to transmit the burst data pursuant to the burst data service. When the power control commands are of binary values, i.e., of values corresponding either to a power-up command or a power-down command, a summation of the values is performed during the selected time period. The result summation of values of the power control commands provide an indication of whether channel conditions pursuant to which a first communication service is effectuated exhibit significant levels of fading. If significant levels of fading are exhibited upon the communication channel, more power-up commands are generated than power-down commands. Conversely, if channels conditions exhibit only low levels of fading, greater numbers of power-down commands than power-up down commands are generated. The summed value is compared with a threshold value. Responsive to the comparison, permission to communicate the data burst pursuant to the burst data service is either permitted or denied. Subsequent summations and comparisons are made during successive time periods to permit, or prevent, the communication of the data bursts responsive to determination of the channel conditions of the communication channel.

Thus, Mandyam discusses channel fading with respect to some acceptable threshold level for the purpose of determining whether or not to transmit a data burst. However, claim 8 recites (emphasis added) "**selecting, based on the fading metric and the priority metric, a mobile unit from the plurality of mobile units that require data transmission.**" Both a fading metric and a priority metric are used to select a mobile for transmission.

Neither Tiedemann 922 nor Mandyam teach selecting a mobile unit for data transmission based on a fading metric and a priority metric. Mandyam teaches determining whether fading on a channel is excessive or not before transmitting, NOT which mobile should be selected for transmission. Therefore, the combination of Tiedemann 922 and Mandyam would involve selecting a mobile for transmission based on a priority metric and determining whether fading on a channel is excessive or not before transmitting. However, the applicants assert that the combination of Tiedemann 922 and Mandyam would not teach "**selecting, based on the fading metric and the priority metric, a mobile unit from the plurality of mobile units that require data transmission,**" as claim 8 recites.

Furthermore, the combination of Tiedemann 922 and Mandyam is also

problematic because of a lack of sufficient motivation to combine. The Examiner appears to assert that the motivation for combining these references is "to provide improved communication quality," citing Mandyam (0014) in the middle of page 6 of the present office action. The applicants submit that this motivation is too generic. We submit that a person of skill in the art could combine the concepts taught by Tiedemann 922 and Mandyam in many new and non-obvious ways that would advance the art of communications. However, we again submit that most if not all of these advances would be motivated by the desire "to provide improved communication quality." This is true because providing improved communication quality is a very general motivation, pervasive in the competitive communications marketplace. To the extent that providing improved communication quality provides a competitive advantage, providing improved communication quality is a motivator for nearly everything done in the communications industry.

Therefore, the applicants submit that the motivation to provide improved communication quality is not a sufficient motivation to combine the particulars of Tiedemann 922 with the particulars of Mandyam in the manner proposed by the Examiner. The applicants submit that substantial hindsight is required to combine the specific teachings of Tiedemann 922 with the specific teachings of Mandyam in the particular way proposed to achieve the functionality recited in claim 8 of "**selecting, based on the fading metric and the priority metric, a mobile unit from the plurality of mobile units that require data transmission.**"

Regarding claims 9, 16 and 18, the Examiner asserts that Tiedemann 867 teaches that the fading metric is based on a voltage gain setting of a forward dedicated channel, citing column 4, lines 41-54. Tiedemann 867 column 4, lines 41-54 read (emphasis added):

The present invention is a novel and improved method and apparatus for high rate forward link power control. The present invention improves the response time of the forward link power control loop and allows for dynamic adjustment of the transmission power on the forward link by measuring the quality of the reverse link power control bits which are transmitted on the forward traffic channel at multiple times within a frame. Measurements over short time intervals allow the base station to dynamically adjust the transmission power to minimize interference to other base stations and maximize

the forward link capacity. The improved response time allows the power control loop to effectively compensate for slow fading. For fast fading, the block interleaver in the communication system is effective.

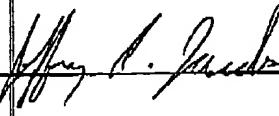
Thus, Tiedemann 867 teaches adjusting the forward link gain based on the quality of the reverse link power control bits. In Tiedemann 867, the mobile measures the reverse channel power control feedback bits, sent on the forward channel, to determine what feedback the mobile should send as forward channel power control feedback bits on the reverse channel. In contrast, taken together claims 8 and 9 recite **selecting a mobile unit for data transmission based on the fading metric** (which is based on a voltage gain setting of a forward dedicated channel) and the priority metric. Thus, claim 9 describes the use of a voltage gain setting for **selecting a mobile unit for data transmission**, not using the quality of the reverse link power control bits for adjusting the forward link gain. Therefore, the applicants submit that Tiedemann 867 does not teach or suggest the language of claim 9. Similar reasoning applies to claims 16 and 18, since they are describing the use of a voltage gain setting to schedule mobile units for data transmission.

Since none of the references cited, either independently or in combination, teach all of the limitations of independent claims 1, 5 or 8, or therefore, all the limitations of their respective dependent claims, the applicants assert that neither anticipation nor a *prima facie* case for obviousness has been shown. No remaining grounds for rejection or objection being given, the applicant now respectfully submits that the claims in their present form are patentable over the prior art of record, and are in condition for allowance. As a result, allowance and issuance of this case is earnestly solicited.

The Examiner is invited to contact the undersigned, if such communication would advance the prosecution of the present application. Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 -- Motorola, Inc.**

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